

THE COMPLETE, TEMPERATURE RESOLVED SPECTRUM OF METHYL CYANIDE BETWEEN 200 AND 277 GHZ

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We have studied methyl cyanide, one of the so-called ‘astronomical weeds’, in the 200–277 GHz band. We have experimentally gathered a set of intensity calibrated, complete, and temperature resolved spectra from across the temperature range of 231–351 K. Using our previously reported method of analysis^a, the point by point method, we are capable of generating the complete spectrum at astronomically significant temperatures. Lines, of nontrivial intensity, which were previously not included in the available astrophysical catalogs have been found. Lower state energies and line strengths have been found for a number of lines which are not currently present in the catalogs. The extent to which this may be useful in making assignments will be discussed.

^aJ. McMillan, S. Fortman, C. Neese, F. DeLucia, ApJ. 795, 56 (2014)